impact SERIES

IMPACT - 10

IMPACT - 12

IMPACT - MINI

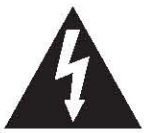
USER'S MANUAL

Home Theater Subwoofers

Velodyne®

IMPORTANT SAFETY INSTRUCTIONS

CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN



Caution

To reduce the risk of electric shock, do not remove cover (or back). No user-serviceable parts inside. Refer servicing to qualified service personnel.

The lightning flash with arrowhead symbol is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the subwoofer.

1. **Read Instructions** — All safety and operating instructions should be read before the product is operated.
2. **Retain Instructions** — The safety and operating instructions should be retained for future reference.
3. **Heed Warnings** — All warnings on the product and in the operating instructions should be adhered to.
4. **Follow Instructions** — All operating and use instructions should be followed.
5. **Water and Moisture** — The product should not be used near water — for example, near a bathtub, washbowl, kitchen sink, laundry tub, in a wet basement, near a swimming pool or the like.
6. **Carts and Stands** — The product should be used only with a cart or stand recommended by the manufacturer.
7. **Wall or Ceiling Mounting** — The product should be mounted to a wall or ceiling only as recommended by the manufacturer.
8. **Ventilation** — The product should be situated so that its location or position does not interfere with its proper ventilation. For example, the product should not be situated on a bed, sofa, rug, or similar surface that may block the ventilation openings; or placed in a built-in installation such as a bookcase or cabinet that may impede the flow of air through the ventilation openings.
9. **Heat** — The product should be situated away from heat sources such as radiators, heat registers, stoves, or other products that produce heat.
10. **Power Sources** — The product should be connected to a power supply only of the type described in the operating instructions or as marked on the product.
11. **Grounding or Polarization** — This product may be equipped with a polarized alternating-current line plug (a plug having one blade wider than the other). This plug will fit into the power outlet only one way. This is a safety feature. If you are unable to insert the plug fully into the outlet, try reversing the plug. If the plug should still fail to fit, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the polarized plug.
12. **Power-Cord Protection** — Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point at which they exit from the product.
13. **Cleaning** — The product should be cleaned only as recommended by the manufacturer.
14. **Nonuse Periods** — The power cord of the product should be unplugged from the outlet when left unused for a long period of time.
15. **Object and Liquid Entry** — Care should be taken so that objects do not fall and liquids are not spilled onto the enclosure.
16. **Damage Requiring Service** — The product should be serviced by qualified service personnel when:
    a. The power-supply cord or plug has been damaged.
    b. Objects have fallen or liquid has been spilled into the product.
    c. The product has been exposed to rain.
    d. The product does not appear to operate normally or exhibits a marked change in performance.
    e. The product has been dropped or damaged.
17. **Servicing** — The user should not attempt to service the product beyond what is described in the operating instructions. All other servicing should be referred to qualified service personnel. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as a power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
18. **Lightning** — For added protection for the product during a lightning storm or when it is left unattended and unused for long periods of time, unplug it from the wall outlet.
19. **Overloading** — Do not overload wall outlets, extension cords or integral convenience receptacles as this can result in a risk of fire or electric shock.
20. **Attachments** — Only use attachments and accessories specified by the manufacturer.
21. **Voltage** — Insure that the subwoofer is only connected to the rated source voltage. Do not connect the 120-volt version to 230-volts or vice-versa. This will result in damage to the subwoofer and possible injury to the user.

CAUTION: To prevent electrical shock, match wide blade of plug to wide slot, fully inserted.

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Congratulations

Congratulations on your purchase of a Velodyne Impact subwoofer system. This system represents the state-of-the-art in home audio reproduction and will provide you with years of listening pleasure when properly used and cared for. Read and follow this instruction manual to ensure safe and proper system connection and operation.

Caution!
Please observe the following instructions to insure safe and proper system operation.

Note: Do not leave unit in direct sunlight or use in high humidity environments!!!

Warning!
To prevent fire or shock hazard, do not expose this equipment to rain or moisture. To avoid electrical shock, do not open speaker enclosure or amp chassis cover. Please observe all warnings on the equipment itself. There are no user serviceable parts inside. Please refer all service questions to your authorized Velodyne dealer.

Prior to Installation:
Please unpack the system carefully. This unit is heavy. Use caution when lifting or moving to avoid injury. Please save the carton and all packaging materials for future use. Packing this unit in any other carton may result in severe damage when shipping. Record the serial number in the space provided on page 13 for future reference.

Product Features

- Driver configurations:
  - Impact-Mini — 6.5" (5" piston diameter) active subwoofer and 64 ounce (4.0 lb) motor structure and 8" (6.5" piston diameter) passive radiator or,
  - Impact-10 — 10" (8.2" piston diameter) subwoofer and 89.6 ounce (5.6 lb) motor structure or,
  - Impact-12 — 12" (9.7" piston diameter) subwoofer and 89.6 ounce (5.6 lb) motor structure
- Class D amplifier
- Adjustable (50 to 200 Hz) low-pass crossover with a 12 dB/octave slope
- Line-level (RCA) inputs
- Speaker-level inputs and outputs
- Signal sensing auto turn on/off
- Variable volume control
- Selectable phase control (0° or 180°)
- Green (power on) / Red (power standby) mode indicator LED

Prepare for Installation
Your new Velodyne subwoofer provides for a number of installation options. Read all the installation information below in order to determine which installation option is best for your system. Remember to perform all installation procedures with system power turned off to prevent possible damage.

Placement

The first step in installing your new Impact sub is to determine where it will be placed in the room. Unpack the system carefully and use the following guidelines in order to find the best room placement option.

True subwoofers operate at extremely low frequencies which are primarily omni-directional. Keep in mind that frequency response and output level can be drastically influenced by placement, depending on the acoustic properties of the listening room. To obtain optimum output from your subwoofer, try placing it within a foot of a corner. This location will offer the greatest output levels and optimum low frequency extension. If at all possible, your subwoofer should be placed along a wall. The worst location for a subwoofer is typically far away from any walls and close to the center of your room. Avoid these locations when possible. When using a pair of Velodyne subwoofers in 2-channel stereo, it is preferable to feed each subwoofer with one channel and place each subwoofer near the satellite of the same channel.

Depending on the size and type of furnishings in the room, perfect placement may not be possible. Finding the best location within your environment will likely require some experimentation. We suggest you experiment with the location during setup to find what sounds best to you when seated in your typical listening position.

Regardless of where you install your Velodyne subwoofer, it must remain in an upright position. Using, shipping or storing the subwoofer in any other position for an extended period of time may result in damage to the unit not covered by warranty.

Caution!

This subwoofer has electronics built into the cabinet. Do not place the cabinet next to sources of heat such as furnace registers, radiators, etc. Do not place the unit near sources of excessive moisture, such as evaporative coolers, humidifiers, etc. The power cord should be routed in such a way that it will not be walked on, pinched or compressed in any way that could result in damaging the insulation or wire.

Your Velodyne Impact subwoofer is NOT magnetically shielded. Should you find it necessary to use it with an older CRT monitor or TV, keep it at least two feet from the monitor. Experiment for correct distance by minimizing distortion of the picture and colors.

Installation

Inputs

Your new subwoofer is equipped with speaker-level and line-level inputs. Use the LINE LEVEL jacks when connecting your subwoofer to a pre-amp, signal processor (such as LFE out), line-level crossover, or receiver with pre-amp level outputs. When using the line level jacks, some receivers may not provide enough signal to have the unit's auto-on feature operate properly. Additionally, this lack of signal may also cause the subwoofer to produce less output than it is capable of.

To alleviate this condition, we recommend the following steps:

1) If using line level jacks, BOTH THE LEFT AND RIGHT INPUT CAN BE USED – never use just the left or just the right input. If the subwoofer's signal comes from the LFE channel of your receiver, use a "Y" splitter to connect to both the left and right inputs.* If using line level connections from a preamp or signal processor, use both Left and Right inputs from your preprocessor or preamp and connect them to the Left and Right inputs on your subwoofer. (See figure 2a on page 7.)

** This dual male-to-female "Y" splitter can be found at your local electronics store.*

2) If using a receiver with LFE out, be sure the LFE channel is sending adequate signal to the subwoofer. We recommend setting the subwoofer's level to the 9 o'clock position (the 1/4 volume setting) and then adjust the LFE channel on your receiver or processor to achieve the desired bass output. See your receiver or processor's owner's manual for more information. (See figure 2b on page 8.)

The SPEAKER LEVEL jacks connect directly to the speaker outputs of any amplifier, integrated amplifier, or receiver. Your amplifier section will notice no additional loading effects when you use these inputs due to their very high impedance. If using the SPEAKER LEVEL inputs, you DO want to connect both channels, since different bass information might be present in each channel going to your main speakers.

Important!!!

Do not use both LINE LEVEL and SPEAKER LEVEL connections simultaneously!

Caution!!!

To avoid damage to your main amplifier, be sure to maintain correct polarity when making all connections - red (positive) to red, and black (negative) to black. Be sure all connections are tight, and that there are no loose strands or frayed wires.

Volume Control

This control allows you to balance the output from the subwoofer to the main speakers in your system. This control should be set to achieve similar output levels from both the main speakers and subwoofer when listening to music. A good starting point for the volume control is two or three graduations from minimum.

Warning:

Some manufacturers preset their receivers with the Sub-Out channel signal at a minimum level. It is very important to verify that your receiver Sub-Out channel is set to the same output level as your front right and left channels. Refer to your receiver manual for the individual channel level adjustment procedure. If your receiver Sub-Out channel is set too low, the subwoofer may appear to have a weak output, it may sound noisy or distorted, and the Auto On/Off feature may not operate properly.

Low-pass Crossover - 50 to 200 Hz

As noted above, all inputs sum the left and right channels together, with the resulting signal passing through an adjustable low-pass crossover before being amplified. The crossover control allows you to adjust the upper limit of the subwoofer's frequency response from 50 to 200 Hz. The subwoofer's response will begin rolling off above the frequency you set this control to. You should set the crossover frequency to obtain a smooth and seamless transition from the subwoofer to the main speakers in your system. If your main speakers are smaller units with limited low frequency output, you may wish to choose a higher frequency (such as 100 - 120 Hz) than you would with larger speakers which have greater low frequency output. With larger speakers, you might start with this control set lower, such as 80 Hz.

Phase Adjustment - 0°/180°

This control allows you to "reverse" the phase of the subwoofer's output signal 180° to correct for any possible mismatch and resulting cancellation between the subwoofer and your main speakers/amplifier. To adjust, simply listen to the system with music playing, then depress the phase switch from one position to the other and listen for a change in mid-bass frequency output. The correct position will have a greater amount of apparent mid-bass frequency output.

For all installations, experiment with the phase switch to determine the setting (0 or 180 degrees) that produces the most mid-bass. If the settings sound similar, we recommend the "0" position.

Auto Turn on Function

The subwoofer will turn itself on automatically when an audio signal is present. If no signal is present for approximately eight minutes, the unit will switch to standby mode (Red LED). While in standby mode, your subwoofer will draw very minimal power.

Warning:

If the Sub-Out channel signal level from your receiver is too weak, this feature will not operate properly and shut the subwoofer off while you are listening to it. To correct this, see VOLUME CONTROL section on previous page.

Rear Panel Connections

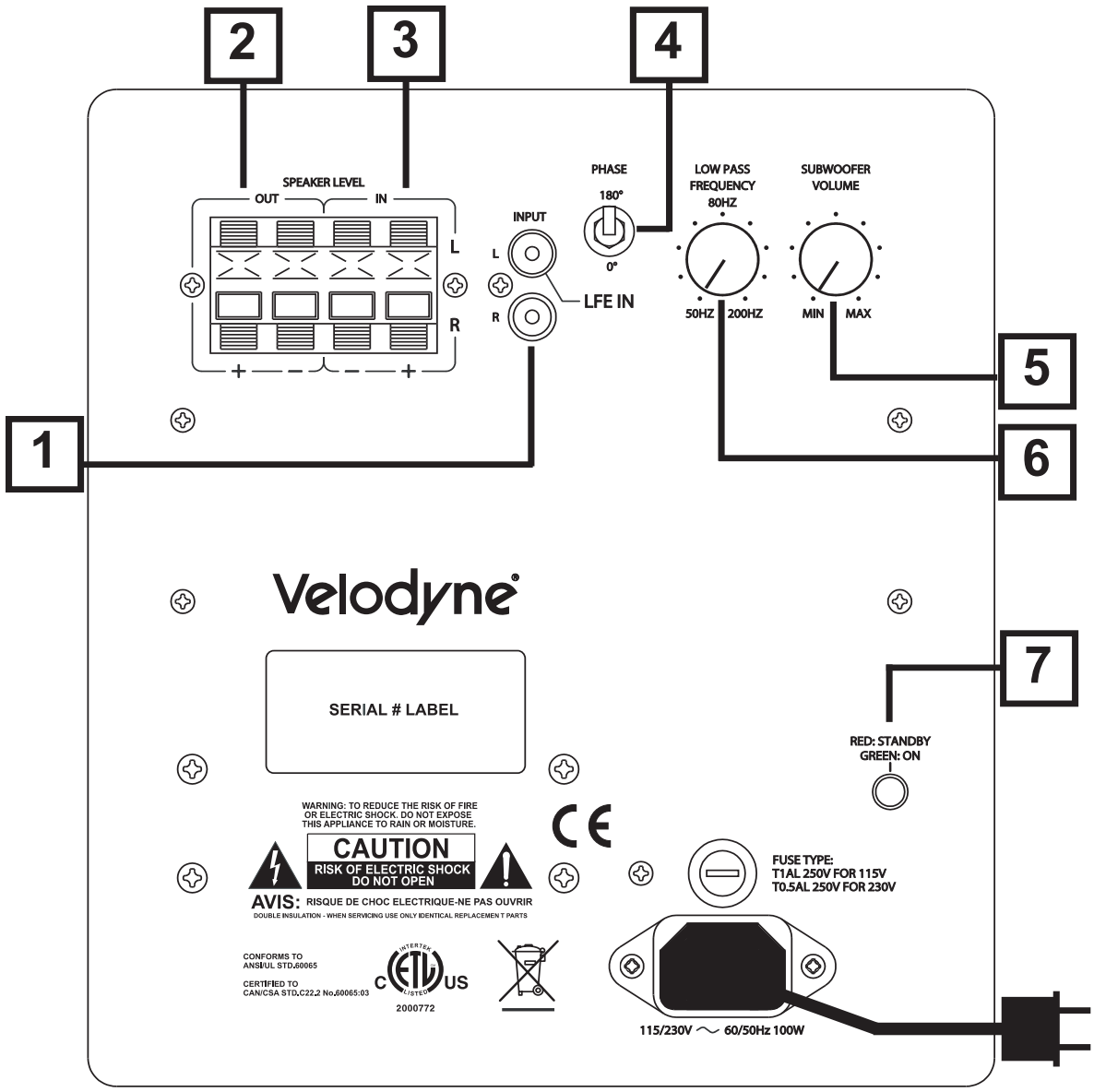

Figure 1.Impact Rear Panel Connections

Figure 1 shows the connections on the rear panel of the Impact. Following are brief descriptions of the connections described in Figure 1. More detail of these connections can be found below:

(1) **LINE INPUT** jacks - Connect these jacks to the LINE OUT jacks of the amplifier.

(2) **SPEAKER LEVEL OUTPUT** terminals - The speaker-level signal to the front speakers is output from these terminals.

(3) **SPEAKER LEVEL INPUT** terminals - Connect these input terminals to the speaker output terminals of your amplifier or receiver.

(4) **PHASE** switch - Select the switch position at which you hear a louder mid-bass sound.

(5) **VOLUME LEVEL** knob - Use this knob to adjust the output level of the subwoofer.

(6) **LOW-PASS CROSSOVER** - Use this knob to select the high-frequency range at which you wish to cut-off the signal to the subwoofer.

(7) **POWER INDICATOR** - Red: Unit is in standby mode. Green: Unit is in operation mode. (automatically turns to STANDBY mode if no signal for eight minutes)

Crossovers

Receiver/Processor Subwoofer Outputs

The Velodyne subwoofer is designed to operate using the full range audio signal for input when using the built-in crossover. Many home theater processors/receivers (Dolby Digital™, DTS™, THX™) have a "subwoofer out" jack (sometimes labeled "LFE") that is internally filtered, settable at the receiver/processor, and designed to be used with a powered subwoofer. In some installations, it may be beneficial to use BOTH the Velodyne crossover and the receiver/processor crossover, resulting in a steeper ultimate crossover slope. In some rare cases, combining both an external crossover and the one internal to the subwoofer may result in low output and increased noise. In these installations you may need to bypass the crossover in either the processor or your Impact subwoofer, or simply setting one crossover to a higher frequency (such as 120 Hz) will restore maximum performance.

(Refer to Figure 2a Line-Level Subwoofer Connection Diagram and Figure 2b Speaker-Level Subwoofer Connection Diagram, pages 7 and 8 for connection diagrams.)

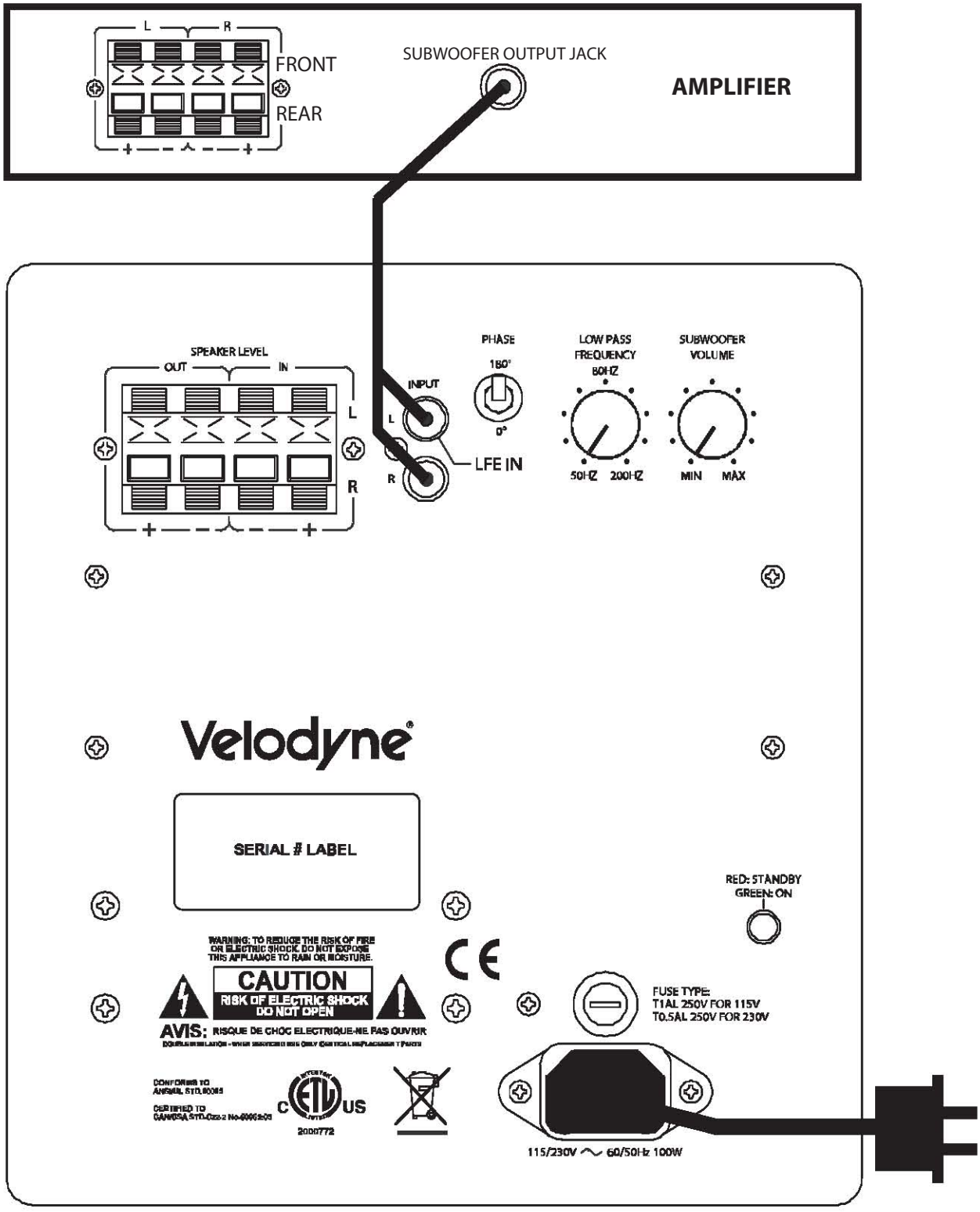

Figure 2a. Line-Level Subwoofer Connection Diagram

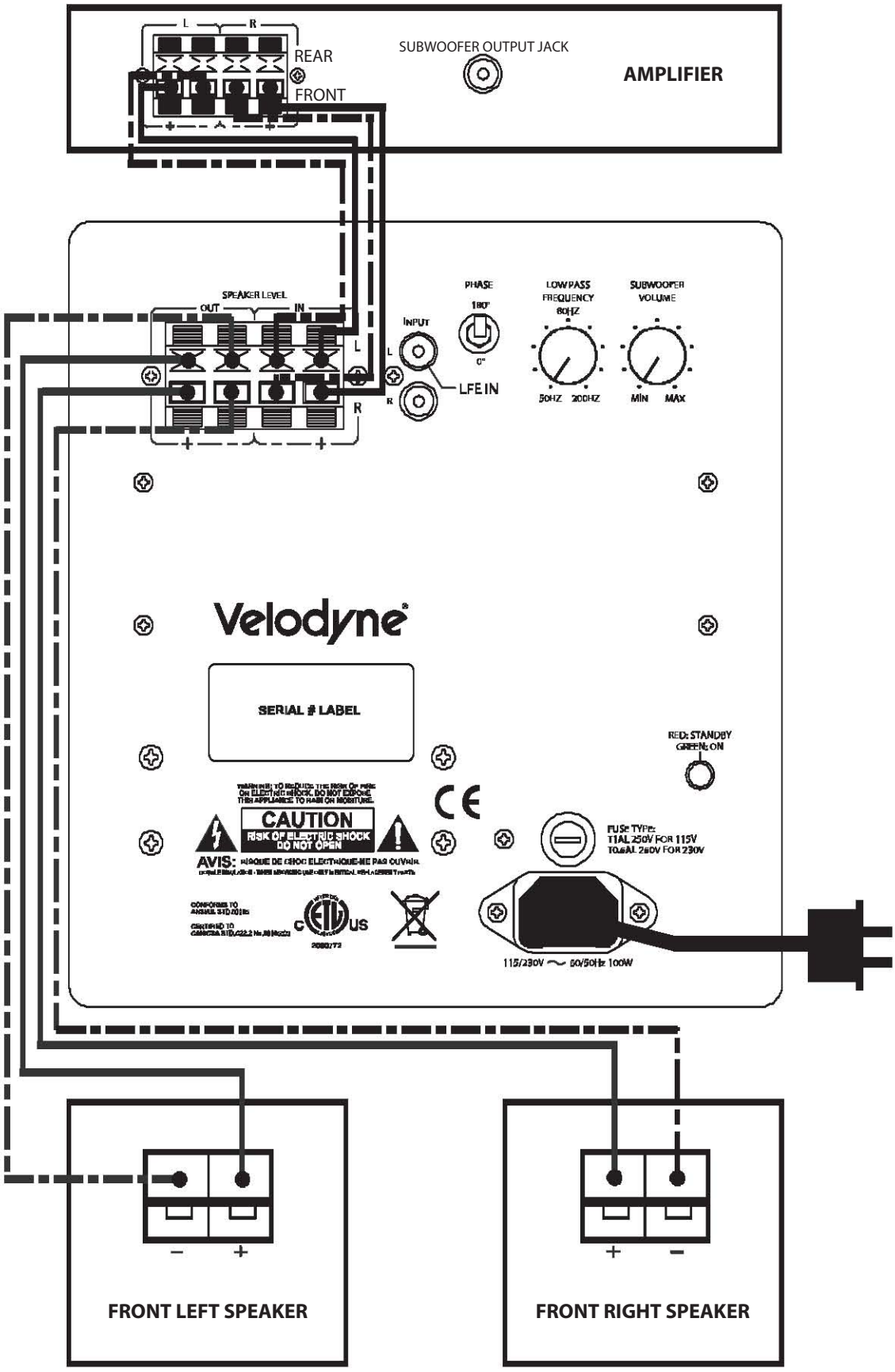

Figure 2b. Speaker-Level Subwoofer Connection Diagram

Interconnect Cables

When installing your new Velodyne subwoofer using the line level connections, you should always use shielded phono cables. There are many high quality cables available today. It is recommended that you keep the length of cable as short as possible to avoid any potential noise problems.

When using speaker level connections, use a high quality speaker cable that mates well with the connectors. Be very careful to avoid any loose strands or frayed wires that may result in a short, which may damage your equipment. Cables of extremely large size are not required due to the low current draw of this type of connection. Extremely large gauge wire may not properly fit in the terminals, resulting in a poor connection and possible short circuits.

Care of Your Subwoofer

Your Velodyne subwoofer does not require any regular maintenance. Normal dusting or cleaning of the surface for appearance purposes is all that is required. We suggest you avoid any harsh detergents or chemicals when cleaning the cabinet. Abrasives, detergents, or cleaning solutions may damage the finish on the cabinet. We recommend using only a damp cloth to clean the cabinet.

During normal conditions, your new subwoofer may be left on continuously without any problems. The unit is equipped with a signal-sensing turn on/off that will automatically turn on the unit when a signal is present at the inputs and turn off the unit after several minutes when there is no longer any signal at the inputs.

Protection Circuitry

Your new subwoofer is equipped with circuitry to provide maximum performance with greatest reliability.

The unit is protected against:
1) Overheating the amplifier.
2) Excessive drop in power line voltage.

If either of the above should happen, you should reduce the volume setting or shut the unit off until normal operating conditions return. You may also want to plug the unit into a different wall outlet, as dropping power line voltage will be most noticeable under strenuous conditions and may result in the unit shutting down intermittently.

Troubleshooting and Service

Before seeking service for your amplifier or subwoofer, please re-check all systems. Following is a simple troubleshooting guide to assist you.

1. Verify that the unit is plugged in and power outlet used is active.
2. Is the power switch on?
3. Is the unit receiving an input signal from your source?
4. Have all controls (volume, crossover, phase, etc.) been properly set?
5. If the unit has been running at high levels, one of the protection circuits may be engaged. Has the amplifier overheated?
6. Make sure the speaker wires are fully inserted into the spring clip connectors and that no wires are touching from one terminal to another.

If the protection circuitry is active, the unit may cycle on and off until operating parameters return to normal. Under more serious conditions, the unit may shut off completely. Normal operation should return upon cooling, but you may be required to turn the power off and then on again to reset the unit.

The following conditions require service by a qualified technician:

1. The power cord has become damaged
2. The unit does not appear to operate normally or exhibits a marked change in performance
3. The unit has been exposed to water
4. Some part of the chassis or circuitry is physically damaged

Thank You for Purchasing a Velodyne!

SPECIFICATIONS

SPECIFICATIONS	IMPACT- Mini	IMPACT-10	IMPACT-12
Woofer	6.5" (16.5 cm) active (5" piston diameter) & 8" (20.3 cm) passive (6.5" piston diameter)	10" (24.5 cm) forward firing (8.2" piston diameter)	12" (30.5 cm) foward firing (9.7" piston diameter)
Amplifier: Class D	300 watts Dynamic Power/ 180 watts RMS	250 watts Dynamic Power/ 150 watts RMS	275 watts Dynamic Power/ 165 watts RMS
Cabinet Design	Acoustically neutral, down-firing passive radiator	Acoustically neutral, downward-firing port	Acoustically neutral, downward-firing port
Frequency Response	38-140 Hz (+/-3 dB)	32 -140 Hz (+/-3 dB)	29 - 140 Hz (+/-3 dB)
Voice Coil	2" copper wound	2" copper-wound	2" copper-wound
Cone	6.5" & 8" Anodized Aluminum Cones	Coated Fiber	Coated Fiber
Magnet Structure	64 oz. (4.0 lbs)	89.6 oz. (5.6 lbs)	89.6 oz. (5.6 lbs)
Speaker-Level Pass-Through	Full range	Full Range	Full Range
Low-Pass Crossover	50 - 200 Hz	50 - 200 Hz	50 - 200 Hz
Outputs	Left and right speaker level pass-through	Left and right speaker level pass-through	Left and right speaker level pass-through
Inputs	RCA Line Level, LFE and Speaker Level inputs	RCA Line Level, LFE and Speaker Level inputs	RCA Line Level, LFE and Speaker Level inputs
Phase	0° or 180°	0° or 180°	0° or 180°
Auto On/Off	Yes	Yes	Yes
Removable Grill	Yes	Yes	Yes
Video Shielding	No	No	No
LED Power Indicator	Yes	Yes	Yes
Input Impedance	65K ohm (for LINE INPUT jacks) 1.2K ohm (for SPEAKER LEVEL INPUT terminals)		
Sensitivity Speaker-Level Line	1.0V 100 mV	1.0V 100 mV	1.0V 100 mV
Power Supply	120V, 60 Hz AC	120V, 60 Hz AC	120V, 60 Hz AC
Cabinet (H,W,D) (inc. feet and grille)	11" x 10" x 12.6" 28.4 x 25.4 x 32 cm	13.6" x 12.6" x 14.9" 38.4 x 32 x 48 cm	15.1" x 14.2" x 18.9" 38.4 x 36 x 48 cm
Warranty (North America)	Three years (electronics - parts and labor) Five years (drivers - parts and labor)		
Shipping Weight (approx.)	24 lbs. (11 Kg)	30 lbs. (13.6 Kg)	38 lbs. (17.2 Kg)

Specifications are subject to change without notice.

115 - 120V

DD® Series
DD-10
DD-12
DD-15
DD-18
Digital Drive 1812 Signature Edition

DEQ-R Series
DEQ-8R
DEQ-10R
DEQ-12R
DEQ-15R

DLS™-R Series
DLS-3500R
DLS-3750R
DLS-4000R
DLS-5000R

Impact Series
Impact-Mini
Impact-10
Impact-12

MicroVee™

MiniVee®
MiniVee® 10

Optimum Series
Optimum-8
Optimum-10
Optimum-12

SMS™-1

SubContractor™ Series
SC-1250
SC-10
SC-12
SC-15
SC-IW
SC-IF/IC
SC-600 Amp
SC-602 Amp
SC-600 IW
SC-600 IF/IC

VX-11

220 - 240V

DD® Series
DD-10
DD-12
DD-15
DD-18
Digital Drive 1812 Signature Edition

CHT-Q Series
CHT-8Q
CHT-10Q
CHT-12Q
CHT-15Q

Impact Series
Impact-Mini
Impact-10
Impact-12

MicroVee™

SMS™-1

SPLi Series
SPL-800i
SPL-1000i

SPL-Ultra Series
SPL-800 Ultra
SPL-1000 Ultra
SPL-1200 Ultra

SubContractor™ Series
SC-1250
SC-10
SC-12
SC-15
SC-IW
SC-IF/IC
SC-600 Amp
SC-602 Amp
SC-600 IW
SC-600 IF/IC

FOR YOUR RECORDS. . .

Date Purchased_____

Dealer_____

Serial #_____

**NOTE: Please complete and return your warranty card within ten (10) days or*

Register. . . ON LINE . . . It's faster . . . and easier
www.velodyne.com

LIMITED WARRANTY - U.S. AND CANADA ONLY

VELODYNE ACOUSTICS, Inc. ("VELODYNE") warrants all electronics for a period of three years, drivers for a period of five years, and full range speakers for a period of five years. All VELODYNE products have a warranty from the date of purchase against defects in materials and workmanship subject to the following conditions:

1. VELODYNE is not responsible for defects which result from the use of an amplifier or controller other than the one originally supplied with the unit (subwoofer) or defects which result from modifications or repairs made by any component of the system by anyone other than a VELODYNE factory authorized service representative.
2. This warranty is void if any repairs or service covered by the terms of this warranty are made to any component of the system by anyone other than a VELODYNE factory authorized service representative.
3. VELODYNE is not responsible for damage caused by accidents, abuse, misuse, natural or personal disaster or unauthorized modification. The VELODYNE products are not intended for professional or commercial use and VELODYNE is not responsible for damage resulting from such use.
4. The VELODYNE product warranty is limited to units that are purchased from authorized VELODYNE dealers and finalized within authorized dealer locations.
5. This warranty is nontransferable under any condition.
6. Use of this product outside the U.S. and Canada voids this warranty.

TO OBTAIN SERVICE

Information regarding service may be obtained from the dealer from whom you purchased the unit, or by contacting VELODYNE customer service. Warranty service must be performed by a VELODYNE factory authorized service representative within the warranty period set forth above. If VELODYNE determines the unit is defective, VELODYNE will, at VELODYNE's option, repair or replace the product at no charge if the product is forwarded prepaid to a factory authorized service representative. Products forwarded to the factory authorized service representative should be shipped securely and properly packaged, insured and freight prepaid.

WARRANTY OUTSIDE THE UNITED STATES AND CANADA

The Warranty of this product if it is sold to a consumer outside of the United States or Canada shall comply with applicable law and shall be the sole responsibility of the distributor that supplied this product. To obtain any applicable warranty service, please contact the dealer from which you purchased this product, or the distributor that supplied this product.

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408.779.9208 service fax

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63-IMP RevD JUN10